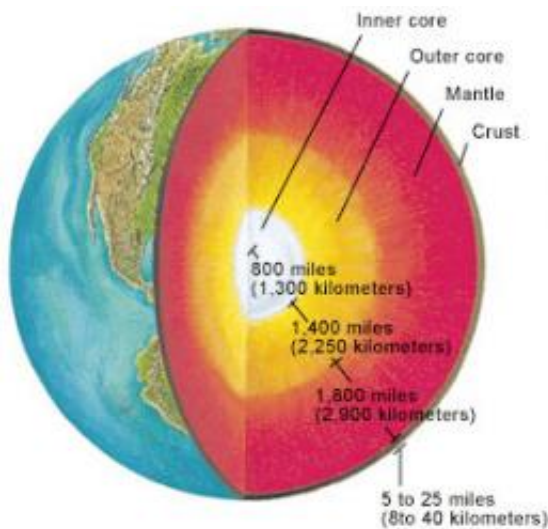


# Scientists plan to drill all the way down to the Earth's mantle

March 25 2011, by Bob Yirka

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Credit: World Book illustration by Raymond Perlman and Steven Brayfield, Artisan-Chicago

(PhysOrg.com) -- In what can only be described as a mammoth undertaking, scientists, led by British co-chiefs, Dr Damon Teagle of the National Oceanography Centre in Southampton, England and Dr Benoit Ildefonse from Montpellier University in France, have announced jointly in an article in *Nature* that they intend to drill a hole through the Earth's crust and into the mantle; a feat never before accomplished, much less seriously attempted.

The [Earth](#)'s mantle is the part of the planet that lies between the crust

and the iron ball at its center, and to reach it, would require drilling down from a position in the ocean, because the crust is much thinner there. Even still, it would mean drilling through five miles of solid rock. And if that doesn't sound hard enough, temperatures increase the farther down you go, and could reach as high as 1,050 degrees Fahrenheit; high enough to render useless most modern drill bits. Last but not least is the problem of atmospheric pressure, which increases the deeper you go, to somewhere in the neighborhood of 4 million pounds per square foot near the mantle. That last one may not seem like much of a problem, but with exploratory drilling, it becomes a problem rather quickly when you remember that it's not just a hole they plan to dig, but a hole that can be used to extract samples from very far below.

To retrieve a sample, the drillers would have to rely on drills without a riser (drills that use double pipes for venting gases) which would mean pumping seawater down into the hole through the drill pipe with sufficient pressure to force whatever is being dug back up to the surface so that it can be examined.

This would not be the first time that a sample of the [mantle](#) would be recovered however, as volcanoes and such have been forcing under-crust material to the surface for eons; it would be the first time that a sample was found though that hasn't been tainted by the process that brought it up to us, and that scientists say, is worth whatever the cost might add up to over time as the project carries on through years of laborious drilling.

The pair plan to begin searching for a suitable site somewhere in the Pacific this spring, but don't expect the technology, nor the funding to allow them to start [drilling](#) till perhaps 2018.

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Citation: Scientists plan to drill all the way down to the Earth's mantle (2011, March 25)

retrieved 10 April 2024 from <https://phys.org/news/2011-03-scientists-drill-earth-mantle.html>

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